भारतीय मानक
Indian Standard

IS 1783 (Part 2) : 2014

बन्द सिरे वाले बड़े ड्रम — विशिष्टि

भाग 2 ग्रेड बी ड्रम

(चौथा पुनरीक्षण)

Drums Large, Fixed Ends — Specification

Part 2 Grade B Drums

(Fourth Revision)

ICS 55.140; 77.140.01

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Metal Containers Sectional Committee, MTD 32

FOREWORD

This Indian Standard (Fourth Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Metal Containers Sectional Committee had been approved by the Metallurgical Engineering Division Council.

This standard was first published in 1961 and subsequently revised in 1974, 1983 and 1988. In this revision following modifications have been made:

a) Reference clause has been added.
b) Dimension of Type 1 and Type 2 drums have been modified.
c) Material clause has been modified.
d) Construction clause has been modified.
e) A new clause on Internal Protective Capacity has been added.
f) Amendment No. 1 has been incorporated.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 ‘Rules for rounding off numerical values (*revised*)’. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard
DRUMS LARGE, FIXED ENDS — SPECIFICATION
PART 2 GRADE B DRUMS
(Fourth Revision)

1 SCOPE

This standard covers the requirements for Grade B mild steel drums of 200 litre — nominal capacity with fixed ends with the following types of construction:

> *Type* 1 — Drums of sheet thickness 1.25 mm for body and ends, with end seam of double seam construction; and
>
> *Type* 2 — Drums of sheet thickness 1.00 mm for body and ends, with end seam of spiral seam/triple seam construction.

2 REFERENCES

The following standards contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below.

IS No.	*Title*
513 : 2008	Cold rolled low carbon steel sheets and strips *(fifth revision)*
1394 : 1984	Glossary of terms relating to metal containers *(third revision)*
3259 : 1966	Methods of sampling of metal containers

3 TERMINOLOGY

For the purpose of this standard, the definitions given in IS 1394 shall apply.

4 CAPACITY

The minimum gross capacity of the drums measured with water at ambient temperature shall be 210 litres.

5 DIMENSIONS

The drums of Type 1 and Type 2 construction shall have dimensions as given in Fig. 1 and Fig. 2 respectively.

5.1 Dimensions of Drums, Large, Fixed Ends with Double Seam Grade B Type 1 (*see* Fig. 1)

5.2 Dimensions of Drums, Large, Fixed Ends with Tripple/Spiral Seam Grade B Type 2 (*see* Fig. 2)

6 MATERIAL

Body and ends of the drum shall be made from mild steel sheet conforming to Grade CR1, CR2 or CR3 of IS 513. The nominal thickness of steel sheets for body and ends of the drum shall be 1.25 mm for Type 1 drums and 1.00 mm for Type 2 drums. Steel of higher strength permitted. Closure flanges shall be manufactured from metal, and closure plugs from metal or plastic material.

6.1 The outside surface of each drum shall be treated as agreed to between the purchaser and the supplier.

7 CONSTRUCTION

The sheets shall be blanked and formed to shape. The blanks shall be free from cracks, dents, pitting, rust and other defects.

7.1 The body shall be continuously resistance welded so as to provide airtight joint.

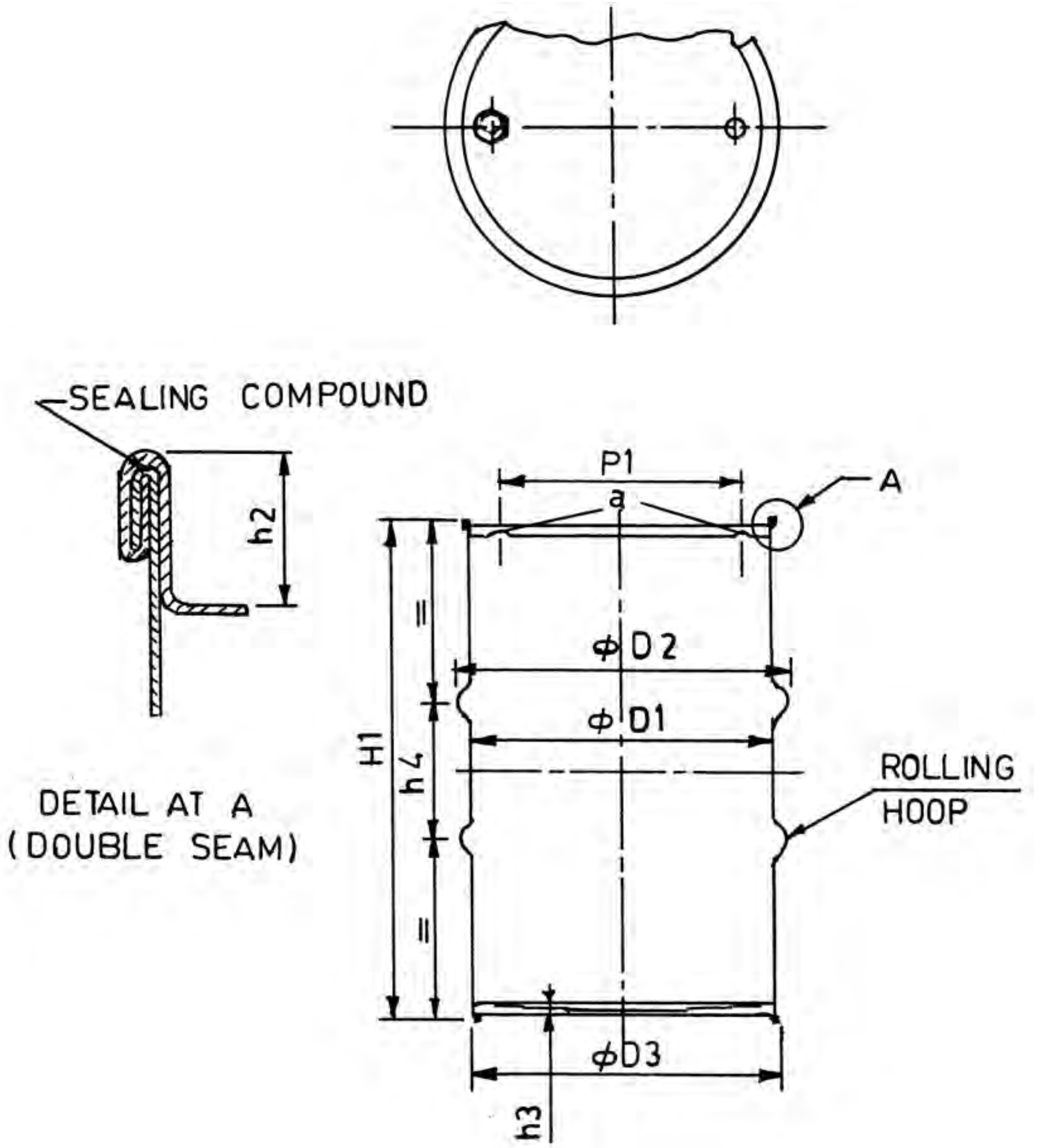
7.2 Double Seam Construction for Type 1 Drums

The top and bottom ends shall be double seamed to the body, using a seaming compound resistant to the product to be packed. The details of double seam construction are shown in Fig. 1.

7.3 Spiral Seam Triple Seam Construction for Type 2 Drums

The top and bottom ends shall be seamed to the body as shown in Fig. 2. The seam shall have rolled 6 or more-layers of sheet with the seaming compound forming a core at the joint of body and end sheets. The seaming compound forming the core shall be flexible and chemically resistant to the product to be packed.

7.4 Drums shall be provided with two rolling beads of hoops, expanded or rolled in the drum body, located



All dimensions in millimetres.

Dimension	*Description*	*Type 1 C*	*Type 1 D*
*D*1	Internal diameter	571.5 ± 2	571.5 ± 2
*D*2	External diameter	585, *Max*	596, *Max*
*D*3	Diameter over chime	585, *Max*	585, *Max*
*H*1	Total drum height	878 ± 5	878 ± 5
*h*2	Depth of top	1)	1)
*h*3	Clearance from floor	4, *Min*	4, *Min*
*h*4	Distance between beads	280 ± 3	280 ± 3
*p*1	Center-to-center distance closures	451 ± 1	451 ± 1

1) The depth of the top shall be such that the closures do not protrude above the chime.

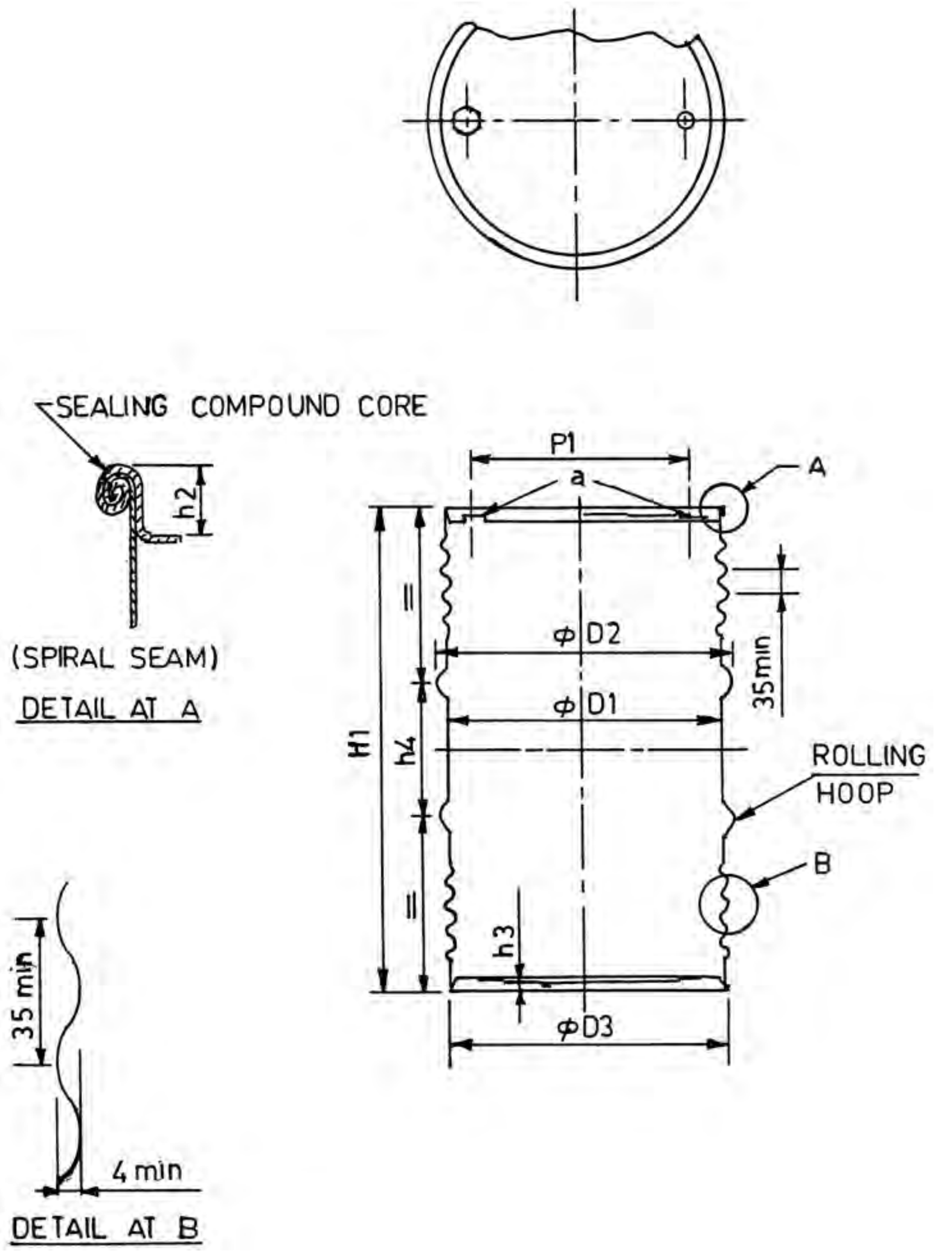
NOTES

1 This figure shows three possibilities for the shape of the top convex flat and concave.

2 For drums produced with concave top, the total drum height *H*1 may be increased by 4 mm in order to reach the specified volume.

a — The complete closure (plug and capseals/overseals) shall not protrude above the top of seam.

FIG. 1 DRUM WITH DOUBLE SEAM



All dimensions in millimetres.

Dimension	*Description*	*Type 2 C*	*Type 2 D*
$D1$	Internal diameter	571.5 ± 2	571.5 ± 2
$D2$	External diameter	585, *Max*	596, *Max*
$D3$	Diameter over chime	585, *Max*	585, *Max*
$H1$	Total drum height	878 ± 5	878 ± 5
$h2$	Depth of top	1)	1)
$h3$	Clearance from floor	4, *Min*	4, *Min*
$h4$	Distance between beads	280 ± 3	280 ± 3
$p1$	Center-to-center distance closures	451 ± 1	451±1

1) The depth of the top shall be such that the closures do not protrude above the chime.

NOTES

1 This figure shows three possibilities for the shape of the top convex flat and concave.

2 For drums produced with concave top, the total drum height $H1$ may be increased by 4 mm in order to reach the specified volume.

a — The complete closure (plug and capseals/overseals) shall not protrude above the top of seam.

FIG. 2 DRUM WITH DOUBLE SEAM

as shown in Fig. 1 and Fig. 2. Constructions of rolling hoops other than those shown are allowed.

7.5 Type 2 drums shall be provided with strengthening corrugations on the body having at least 4 mm depth measured from crest to trough, 4 numbers on each side, located symmetrically between the end seams and the rolling hoops as shown in Fig. 2.

7.6 Rectification

Any leakage observed at the welded seam and double seam during leakage test (**9.1**), may be rectified by manual welding.

7.7 Closures

The drums shall be fitted either with one screwed closure 50 mm or with two screwed closures— one of 50 mm and the other of 20 mm as desired by the purchaser. The position of the screwed closure shall be as shown in Fig. 1 and Fig. 2. Screwed closures shall be conforming to IS 1784.

8 FINISH

The drums shall be in clean condition, the inside being free from all traces of rust and foreign matter.

8.1 If the materials used for the body, heads and fittings are not in themselves compatible with contents to be transported, suitable internal protective coatings or treatments shall be applied as agreed to between the customer and the supplier. These coatings or treatments shall retain their protective properties under normal conditions of transport.

9 TESTS

9.1 Leakage test shall be performed by using any of the following methods :

a) Each drum shall be tested for leakage at air pressure of 50 kPa (0.5 kgf/cm^2) with the seams under water or covered with soap solution. The drum shall not show any sign of leakage or drop in the test pressure when observed for at lest 10 s.

b) Using special equipment fill the drum with helium, thereafter putting the drum in an air-tight chamber, creating a high vacuum in the annular space between the inner wall of the chamber and outer surface of the drum and thereafter testing for leakage in the drum body by checking for presence of helium in the annular space using Mass Spectrometer.

c) Using special equipment put the drum in an air-tight chamber, creating a high vacuum in the annular space between the inner wall of the chamber and outer surface of the drum and thereafter testing for leakage in the drum body by observing for any drop of the differential pressure between inside of the drum and outside of the drum.

9.2 Drop Test

One drum from each lot of 2 000 Type 2 drums shall be subjected to drop test as given in **9.2.1** to **9.2.3**.

9.2.1 Fill the drum to 98 percent of its gross capacity with water at ambient temperature and close it properly. Suspend the drum with the diagonal in the vertical position and raise it to a height so that the lowest point on the drum is 1 : 25 m clear off the horizontal striking test surface. The striking surface shall be horizontally plain concrete floor or a steel plate at least 40 mm thick. The drum shall be dropped in such a way that it strikes the floor at the bottom rim, at its junction with the side seam. The same drum shall again be dropped so that it strikes the floor at the top rim at its junction with the side seam.

9.2.2 The drum shall be examined for any leakage of water after the test. Any leakage of water shall indicate failure of the drum in the test.

9.2.3 If the sample tested above fails, two more drums from the same lot shall be subjected to the same test and if any of the two samples fails again, the lot shall be deemed to have failed in the test.

9.3 Hydraulic Pressure Test

One sample from each lot of 2 000 Type 2 drums shall be selected and subjected to hydraulic pressure test as given in **9.3.1** and **9.3.2**.

9.3.1 The drum shall be subjected to a gradually applied hydraulic pressure of 100 kPa (1.0 kgf/cm^2). This pressure shall be maintained for at least 5 min and any leakage of water or drop in the pressure shall indicate failure of the drum in the test.

9.3.2 If one sample tested above fails in the test, two more samples from the same lot shall be taken and subjected to the hydraulic pressure test as given in **9.3.1**. If any of the samples fails again, the lot shall be deemed to have failed in the test.

10 SAMPLING

10.1 Representative samples of the drum for tests regarding dimensions, capacity, construction, finish, air leakage, shall be drawn as prescribed in IS 3259.

11 MARKING

11.1 Each drum shall be marked legibly and indelibly with the following particulars by embossing with raised markings or screen printing on the bottom:

a) Indicating the source of the manufacturer,
b) Grade and type of the drum, and
c) Any other information as required by the purchaser.

12 STANDARD MARK

12.1 The drum may also be marked with the Standard Mark.

The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act,* 1986 and the Rules and Regulations made thereunder. The Standard Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well defined system of inspection, testing and quality control which is devised and supervised by BIS and operated by the producer. Standard marked products are also continuously checked by BIS for conformity to that standard as a further safeguard. Details of conditions under which a license for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

Bureau of Indian Standards

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Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Catalogue' and 'Standards : Monthly Additions'.

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Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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